Attorney Docket # 5367-223PUS PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of Dominik EISERT et al. Serial No.: 10/572,655 Filed: March 6, 2007 For: Radiation-Emitting Thin-Film Semiconductor Chip	Examiner: LAM, Cathy N. Group Art: 2811

Commissioner for Patents
Alexandria, VA 22313-1450

PRE-APPEAL BRIEF REQUEST FOR REVIEW

SIR:

This is a Request for a Panel Review of Issues on Appeal. A Notice of Appeal is filed concurrently herewith in response to the final Office Action dated April 27, 2009. No amendments are being filed with this Request.

Arguments supporting the Request for Review are as follows.

ARGUMENTS

Claims 1-2, 4-8, and 10-61 are pending, with claims 19-43 being previously withdrawn. Claims 1 and 46 are the only independent claims.

The matter to be reviewed in this Request is whether the Examiner has established a *prima facie* case of obviousness under 35 U.S.C. § 103(a) against claims 1-2, 4-8, 10-18, and 44-61 based on U.S. Patent No. 6,291,839 to Lester. More specifically, the Panel is requested to review:

(i) whether the p-type layer 16 shown in Fig. 5 of Lester is properly interpreted to have convex elevations, as recited in the claimed invention; and

(ii) whether the claim features about the relative heights and/or inclination angles concerning the convex elevations would have been a matter of design choice to one skilled in the art.

A. Independent Claim 1

(i)

The Office Action interprets the p-type layer 16 shown in Fig. 5 of Lester as having convex elevations, as recited in independent claim 1.

Independent claim 1 recites "*a region of the multilayer structure that adjoins the second main face of the multilayer structure is patterned by one- or two-dimensional depressions forming convex elevations.*" The resultant convex elevations (26) are illustrated in Figs. 9A and 9B and are each defined by one or more depressions (24), which extend in either one or two coordinate directions (*see*, also page 6 of Preliminary Amendment).

In Lester's light emitting device (LED), the top surface of the LED is roughened, preferably in alignment with the openings in the contact 20 (*see*, Fig. 1). Such roughened

surface can be formed by etching the GaN during the same lithographic step used to pattern the contact 20. The etched holes can extend into the p-layer 16. *See*, col. 5, ll. 8-14 of Lester.

There are no "convex elevations" in Lester, much less ones formed "by one- or two-dimensional depressions," as recited in independent claim 1. If Lester's etched holes were interpreted as depressions forming any elevations, such etched holes are not "one- or two-dimensional depressions." For example, if the etched holes in Lester are viewed in a top down direction after removing the contact 20, they are likely to resemble a pattern similar to the finely spaced pattern of openings in the contact 20, as is shown in Fig. 1 and taught in column 3, lines 1-3 of Lester. Indeed, Lester teaches that such roughened surface can be formed by etching the GaN during the same lithographic step used to pattern the contact 20. *See*, col. 5, ll. 8-14 of Lester. The etched holes in Lester do not alter the structure of the p-type layer 16 to form "convex elevations" as recited in independent claim 1.

Therefore, the p-type layer 16 in Lester is merely a single-piece layer with multiple etched holes. Lester thus does not disclose "convex elevations" formed by "one- or two-dimensional depressions" recited in independent claim 1.

Independent claim 1, thus, patentably distinguishes over Lester for the above reasons.

(ii)

The Office Action improperly concludes that the claim features about the relative heights and/or inclination angles concerning the convex elevations would have been an obvious design choice.

Independent claim 1 recites "*the convex elevations having a height (h1) at least as large as a distance (h2) between the patterned region and the active, radiation-generating layer*."

The Examiner acknowledges that Lester does not teach the above recited features of independent claim 1 but takes the position that such recited features would have been an obvious matter of design choice (*see*, pages 3 and 4 of the Office Action). Applicants disagree.

Section 2144.04 of the Manual of Patent Examining Procedure (MPEP) states that:

> where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device (citing *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 830, 225 USPQ 232 (1984); emphasis added).

In this case, independent claim 1 differs from Lester more than in the height concerning the convex elevations. As submitted above, Lester does not teach the claimed "convex elevations" formed by "one- or two-dimensional depressions," as recited in independent claim 1. Because of such difference between independent claim 1 and Lester, independent claim 1 is not obvious under the above section of the MPEP.

Moreover, the above recited claim features concerning the heights h1, h2 of the respectively patterned and non-patterned regions are not merely structural dimensions. Rather, such features specify the relative relation between the two heights as $h1 \geq h2$. As applicants disclosed in the specification, such relative relation between heights h1, h2 can improve the external efficiency of coupling-out radiation (*see*, paras. [0053] and [0054] of the published application).

Lester is silent about the relative relation between the heights of the etched holes in the p-type layer 16 and of the remaining p-typed layer 16. In fact, Lester teaches that its etched holes can extend either into or through the p-type layer 16 (see, col. 5, ll. 13-14 of Lester). In other words, Lester does not concern the relative heights of the etched holes in the p-type layer 16 and

of the remaining p-typed layer 16. Nor does Lester recognize the effect that the relative height relation has on the coupling-out efficiency of the LED.

Therefore, the above recited claim features are not an obvious matter of design choice. Independent claim 1, thus, patentably distinguishes over Lester for the above additional reasons.

In view of all the above, independent claim 1 as well as its dependent claims 2, 4-8, 10-18, 41, 44-45 are each allowable over Lester.

B. Independent Claim 46

Similar to independent claim 1, independent claim 46 recites "the convex elevations having an inclination angle (ß) of between approximately 30° and approximately 70°."

Because Lester fails to teach "the convex elevations" or otherwise recognize the effect of the inclination angle (ß) on the coupling-out efficiency of the LED, independent claim 46 is not obvious over Lester. Therefore, independent claim 46 and its dependent claims 47-61 each patentably distinguish over Lester for the above reasons.

C. Conclusion

In view of the foregoing, claims 1-2, 4-8, 10-18, and 44-61 are each allowable over Lester. Withdrawal of the 35 U.S.C. § 103(a) rejections is respectfully requested.

The Office Action also raised formality rejections of claims 45 and 47. Such formality rejections are believed to be improper because "the semiconductor chip" clearly refers to claimed subject matter.

The subject patent application is, thus, in condition for allowance.

Respectfully submitted,
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